

USE OF SYSTEMS AND PROCESS APPROACH WHEN MANAGING PROGRAMMES OF LIFELONG EDUCATION

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***Abstract:** This paper deals with the use of process modelling for the needs of the process Management of educational programmes of life-long education in the Institute of Lifelong Education at the Mendel University of Agriculture and Forestry in Brno. The process modelling enables to model not only existing but also future processes. In the Institute of Lifelong Education at the Mendel University of Agriculture and Forestry in Brno the method of process modelling has been used partly when trying to register and encourage new processes occurring in association with the development of this university institution and partly when eliminating some inefficient processes and improving some other. The above process was modelled on the base of an analysis of its structure, internal relationships, events and mutual links and responses. The obtained results enabled to develop a process model, which enables an efficient implementation of the process of Management of educational programmes of life-long education.*

***Keywords:** Process Modelling, Education, Projects, Processes, Activities, Events.*

1. Introduction

Historically, the origin of process management has been associated with the production sphere and it stretches back to the era of the establishment of first manufactures. The differences among and between individual historical periods consist, above all, in the fact, that in individual developmental stages, individual attributes of the managerial system itself were more or less stressed and/or that a greater or smaller importance was attributed to them. However, it is substantial that each of these approaches had to control and operate with organisational processes, which represent nothing else than a sum of logically arranged activities, resources, and responsibilities leading to a transformation of inputs into outputs. The main objective of this process is to enable and assure the most efficient transformation and the best possible performance because this is the main purpose of activities of each enterprise and/or organisation.

Process modelling enables to see business activities and processes in their real context and normal situation; from this point of view they can be depicted by means of those methods and approaches that are used for specification and analysis of these processes. Nearly all organised systems may be modelled and its behaviour, requirements and needs may be exactly specified. Modelling, for example, enables to define the mission of an institution on the base a concrete specification of business processes and analysis of their properties. The purpose of modelling is to create such an abstraction of the process, which enables to understand all its activities as well as their interrelations and roles represented by capabilities of people and facilities participating in a given process.

This paper deals with the possibilities of the process modelling use when organising educational programmes of lifelong education at the Institute of Lifelong Education at the Mendel University of Agriculture and Forestry in Brno (ILE MUAF).

2. Material and Methods

The education involves not only acquisition of special skills and teaching and studies on specialised topics but also the dissemination of knowledge, capability of a good assessment and wisdom. One of the basic objectives of education is to pass principles of civilisation from generation to generation.

The main objective of education is to transfer ideas from one person to the other. Problems of the existing educational system involve above all searching of proper methods how to disseminate information, how to teach and what to teach, how to evaluate the importance of disseminated knowledge and also how to preserve the acquired knowledge in the memory of recipients. It is obvious that these and many other problems can be solved and also improved on the base of the systems and process approach.

As all commercial firms, universities also “posses” business processes, which represent a sum of activities transforming the multitude of inputs into a multitude of outputs; these outputs can be used either in other processes or by other people with the support of corresponding human resources and various tools. The improvement of educational processes is (and in the near future surely will be) quite indispensable for the preservation of competitiveness of each university. In the last two decades, it was quite normal in the commercial sphere that firms were forced by their clients to develop and improve their processes because the market required better and better products. In case that the customers do not receive products and/or services they require, they have a possibility to change the supplier and to buy required items from competitors. This is the main feature and strength of modern market economy and a similar situation exists also in the sphere of education. Universities have to develop and manage their internal processes and must systematically and try to develop and improve them. Such approach is based on understanding, measuring and evaluation of existing processes and also on continuous efforts to improve them.

Basic steps of such a continuous improvement of processes are presented in Fig. 1. The first step consists of a description of the current situation, which is followed by a definition of basic quantifiable parameters required by customers. A systematic monitoring of this process then enables to identify opportunities for its improvement; these opportunities must be considered with regard to their mutual relationships, put into a proper context and thereafter implemented. Changes performed within the framework of this process must be properly documented and the whole cycle must be then repeated. This cyclical feedback is also called the system of continuous, systematic improvement of existing processes.

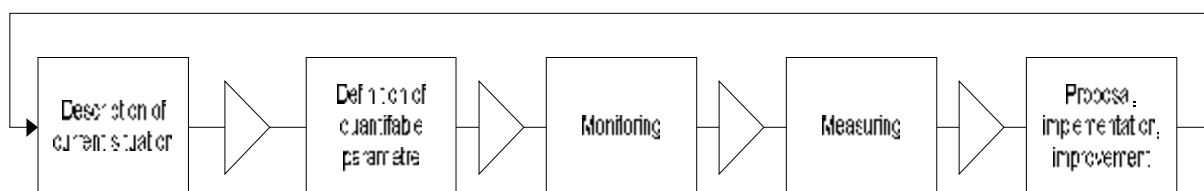


Figure 1: A continuous improvement of existing processes (Source: Řepa, 2007)

The aforementioned improvement method of existing processes enables to reach a gradual, stepwise improvement. However, there is also a need of a more radical approach to their change and one of them is the so-called process of reengineering (Business Process Reengineering abbreviated as BPR). This process fundamentally differs from the stepwise method mentioned above. Its basic premise is that the existing processes are fully inadequate, not working or insufficient and that it is necessary to change them radically and from the very beginning (Řepa, 2007). Such a clear view of the problem of process reengineering also enables us to cut off from the current situation and to concentrate ourselves only to the creation of a fully new process. The reengineering approach is illustrated in Fig. 2. It begins with the definition of the extent and main objectives of the reengineering project, which is followed by a thorough analysis. Results of this analysis enable to create a vision of future processes. Further it is necessary to develop a plan of those activities that will result in a quick introduction of a new system of processes. Implementation stage is the last step of the reengineering. It will be possible to manage this procedure in an effective manner only if such change is implemented as a project (Máchal & Liška, 2008).

The development of the process model of the ILE MUAF was based on results of an analysis of the process “*Management of educational programmes of lifelong education, its structure, interrelations, and mutual links among individual activities*”. The model of the managerial process was developed on the base of this analysis. Creation of such a process model and its implementation enable an efficient planning of educational programmes organised by the Department of further professional education of the ILE MUAF without any temporal and/or spatial. Expert activities and consultancy represent an important precondition of the development and creation of process models. Expert activities were defined by Linhartová (2008) as a process which plays a role of a highly qualified expert/consultant both in the fields of study and professional consultancy.

The performed analysis consisted of the following steps:

1. Formulation of necessary activities and their arrangement in the context with the mode of operation, associated documents etc. relating to the implementation of educational programmes of lifelong education in ILE MUAF Brno;
2. Creation of a model of the managerial process *Management of educational programmes of lifelong education*;
3. Formulation of concrete model outputs, e.g. activities plan of the Department of further professional education for a current year, allocation of tuition into individual classrooms, recruitment and acquisition of human resources etc.

The process model was elaborated by means of the software package Enterprise Architect (EA). This package was supported by UML version 2.1 but it was also possible to define additionally also other objects and their characteristics so that there will be practically unlimited possibilities to create further and further models. This is a tool that support and considerably facilitate the whole stage of software development (i.e. from the definition of requirements concerning the system through designing to the preparation of final tests and system documentation. EA package supports Business Process Modelling and this certainly an advantage as compared with other CASE tools, which support only the UML-based modelling. EA package also supports the formation of both logical and physical data models.

In this study, the illustrated process model was visualised by means of the software Microsoft Office Visio. The performed analysis was supplemented by the method

of description of both process model and the basic parameters. The proposal of implementation of the developed model was formulated on the base of performed process analysis and description.

3. Results and Discussion

Basing on results of the performed analysis those activities of ILE MUAF were formulated at first that were associated with its mission in the domain of lifelong education. The establishment of the university institute at the Mendel University of Agriculture and Forestry in Brno pursuant provisions of § 22 of the Act n^o 111/1998 Sb., on universities as well as the Rules of the system of lifelong education at MUAF (an internal regulation of MUAF, issued on 1 September 2008) defined the basic conditions for the implementation of lifelong education at the Mendel University of Agriculture and Forestry in Brno.

As far as the sphere of further professional education is concerned, ILE MUAF is oriented above all on the implementation of a continual development of lifelong education in educational programmes and projects focused on needs of professional public in a close cooperation with teachers and other university employees.

Planning is an indispensable part of any managerial system. This is an activity, which stands at the beginning of the management process. And planning is naturally also the starting point of the project *Management of educational programmes of lifelong education*. This process involves also activities of marketing, logistic, legal and administrative nature.

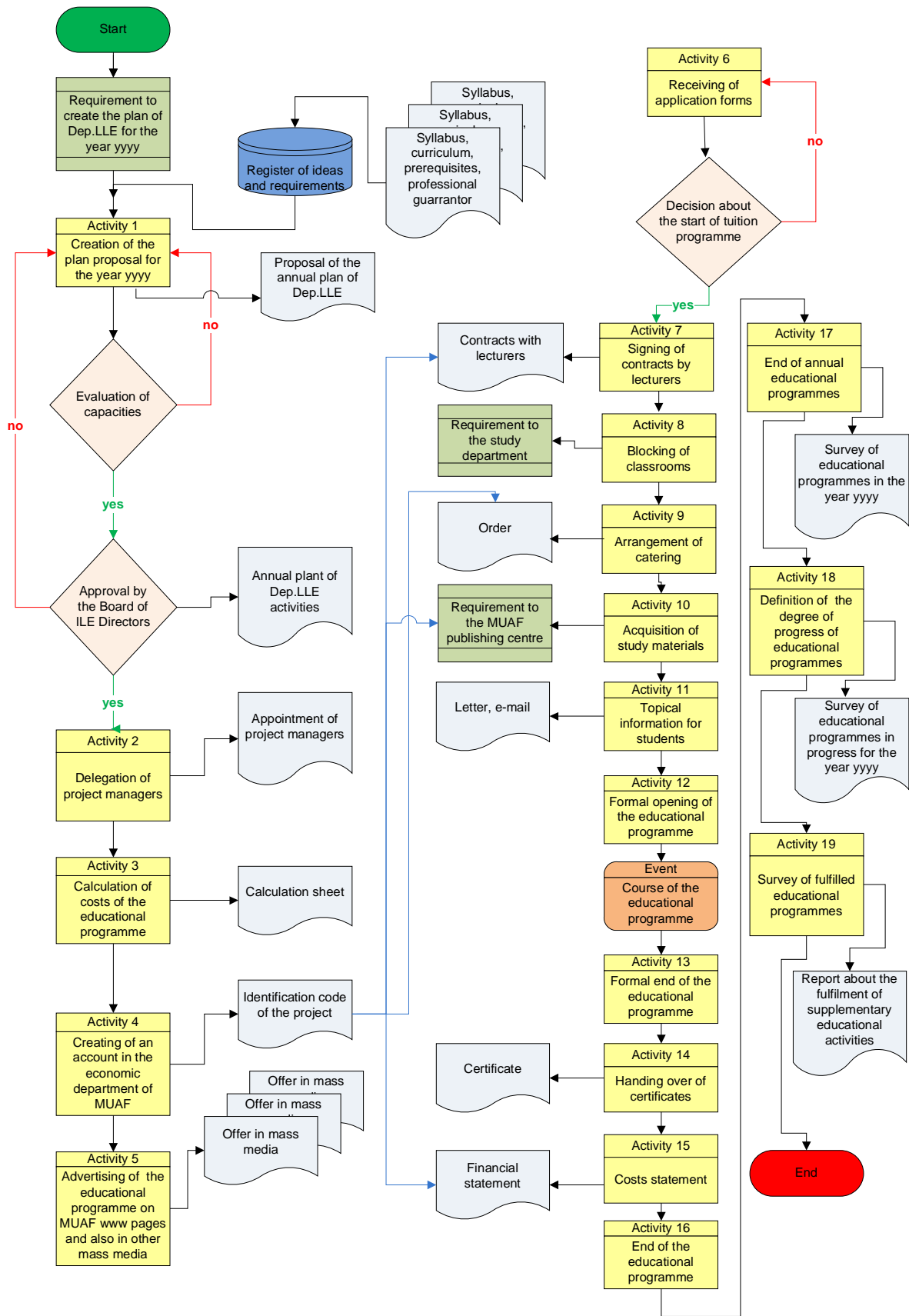
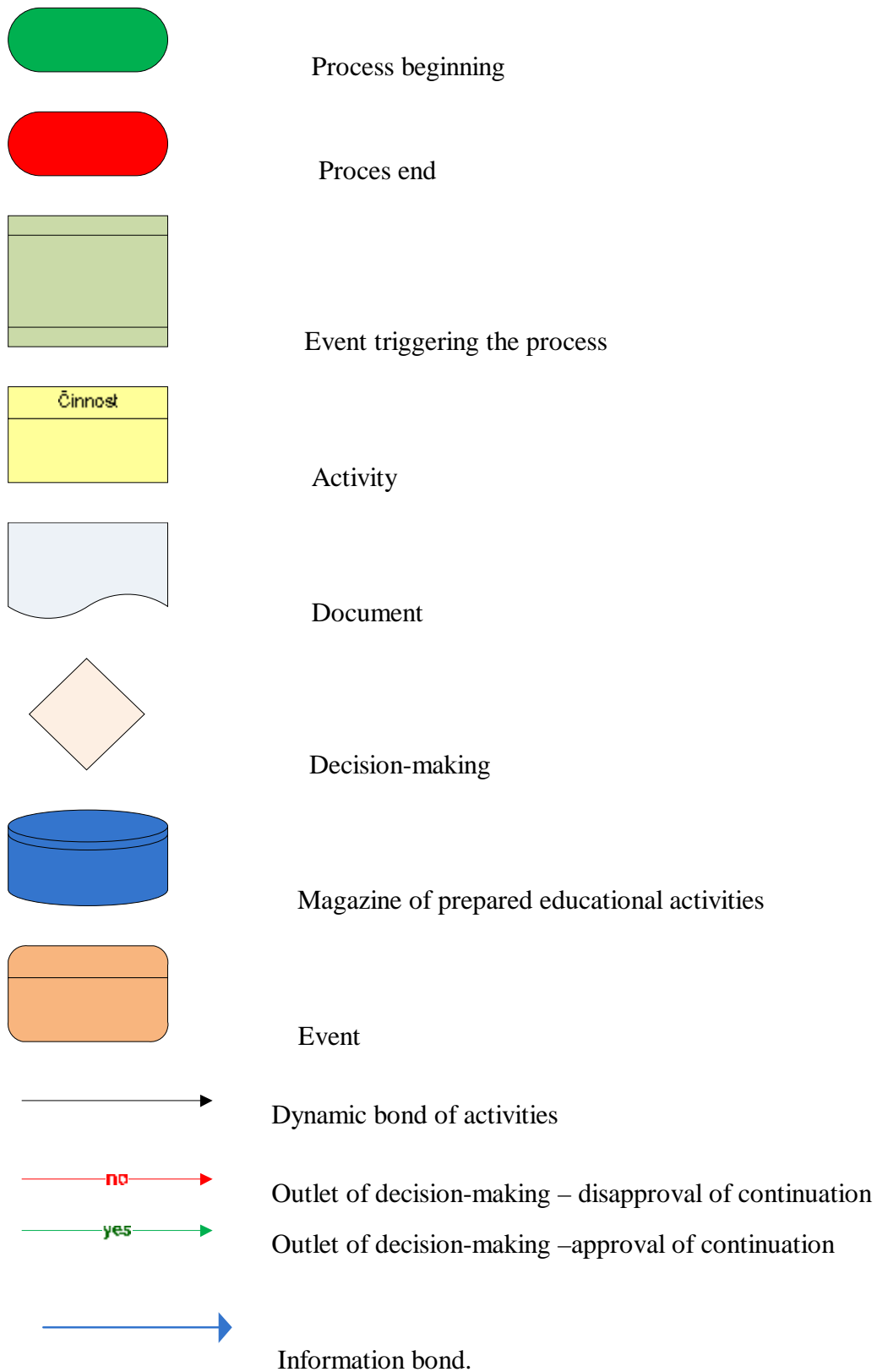


Figure 2: Model of the process *Management of educational programmes of lifelong education* (Source: author's own data)

The model *Management of educational programmes of lifelong education* is presented in Fig. 2. When performing its visualisation, the following methodology was used:



The methodology of the process *Management of educational programmes of lifelong education* modelling is associated with the applied software product, which has been designed for applications in the field of process modelling (in the given case using MS Visio). In general, it is possible to identify the following basic elements of each process model Řepa (4):

- Process;
- Activity;
- Event;
- Dynamic bond.

Processes are always modelled as structures consisting of interlinked activities. However, an activity cannot be described independently as a process. The fact of an activity is or is not described as a process is dependent above all on the method used by the model's author, need of understandability and/or SW package used. The development of a model consists of the following steps:

- Definition of activities;
- Arrangement of activities, i.e. defining and presentation of interrelationships among and between activities (i.e. of logical bonds);
- Estimation of the duration of individual activities, i.e. definition of time necessary for the implementation of individual activities;
- Elaboration of a time schedule, i.e. elaboration of a flowchart depicting individual time intervals, needs and resources.

These activities must be implemented in a logical sequence and must also be interlinked so that it would be possible to develop a block diagram on the one hand and to elaborate a concrete managerial document containing clearly defined terms and responsibilities. When developing process models it is very important to use the systems approach (Lacko, 2002). When applying the systems approach, a successful overcoming of different barriers is a basing precondition of the development of a real process model.

4. Conclusion

This paper deals with possibilities of application of process modelling when implementing the project *Management of educational programmes of lifelong education* at the Mendel University of Agriculture and Forestry in Brno. The method of process modelling enables to plan not only the existing but also future processes. In the ILE MUAF we use the method of process modelling partly in the field of identification of new processes resulting from the development of this university institute and partly when trying to eliminate outdated and inefficient processes with the aim to improve the overall system of work and to increase its competitiveness both in the internal and external competition. The main sources of modelling managerial processes described above were, above all, its analysis, structure, mutual relationships, links and bonds on the base of an analysis of events and responses. Results of the performed analysis were used when developing the process model enabling to master efficiently the process *Management of educational programmes of lifelong education*.

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